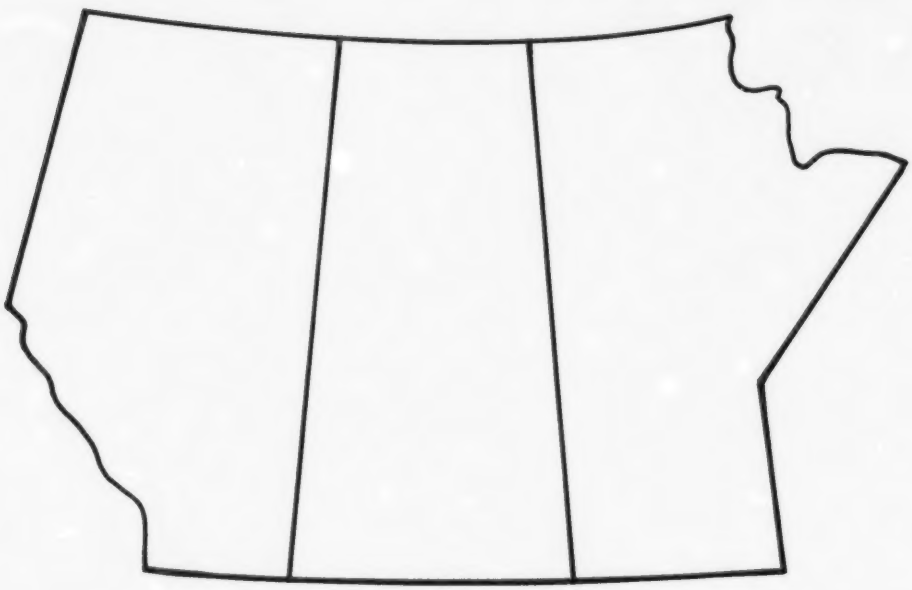
Prairie Provincial Study On Telecommunications



An Examination of the Potential Impacts of Competition in Long-Distance Service on Rural and Urban Subscribers

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EXECUTIVE SUMMARY

Basic telephone service rates would have to rise substantially in the event of competition in long-distance service, and its associated impact on toll service rates. Rural subscribers would suffer the greatest disadvantage under competition.

The current study expands on an earlier examination of the effects of competition by the Federal-Provincial-Territorial Task Force. The Report of the Task Force, published in December 1988, had identified the general impacts of competition on the subscriber's basic service rates. Initiated on behalf of the Prairie provinces, the current Report presents a case study of the impact of competition on the prairie region and especially for rural subscriber basic service rates in Saskatchewan. The study was carried out under the direction of Dr. R. E. Olley, an economist from the University of Saskatchewan.

The Report emphasizes that the present arrangements for Prairie telecommunications have evolved to meet the particular set of needs in each province, given its particular geographic, economic, social and other characteristics. Telecommunication services have been tailored to meet local conditions, and are administered to meet specifically Prairie requirements in a comprehensive, dependable and equitable manner. Moreover, the Prairie telcos have paid particular attention to regional development needs in manufacturing and other areas.

Notwithstanding the accepted benefits of competition, the Report notes that the conditions for competition, to work effectively, are very stringent and that they cannot be met in Prairie telecommunications. Among other things, the continuous decline of costs per unit of production as output increases, means that competitors could not survive without some artificial and costly market sharing arrangement. One way or another, under competition, subscribers would have to bear unnecessary costs from

lost efficiency, duplicated facilities, wasted spending on network rearrangements, rivalrous advertising, duplicated billing systems, and so on.

The Report notes that the present relatively high long-distance rates have been encouraged and accepted by regulators for many years. If it is now true that long-distance rates should more closely approximate costs, the study has shown that by far the most efficient approach would be for regulators to require rate rebalancing. Rate rebalancing, as compared to competition, would trigger much lower increases in basic service rates (which currently are far below cost) and would make the benefits of lowered long-distance rates available to everyone, not just to the favored few in the competitor's artificially protected market.

The Report notes that the only outcome of competition in the United States is that it has brought about the rebalancing of telephone rates, and has done so at a high cost to subscribers. After the end of the 1970's, when competition became firmly established in U.S. telecommunications, the overall price index for telecommunications ceased its long term decline relative to other goods and services, and began to rise. In Canada the long term decline continued unabated. Within telecommunications, daytime inter-state long-distance rates have declined sharply under competition in the U.S. However, intra-state rates have not declined and local/access rates have risen dramatically. Evening and weekend discounts, which benefit individual consumers most directly, have been reduced under competition. Since the declines in inter-state rates have been ordered by the U.S. federal regulator, as it shifted access costs back into local/access charges, even the rate declines which have occurred result from regulatory action, not from competition. Thus, the Report observes that "...competition in telecommunications is an unnecessary and extremely costly way of achieving a more efficient pricing system".

To analyze the financial impacts of competition, the Report used the market sharing scenario proposal of CN/CP, which it called competition in one of its applications to the Canadian Radio-television and Telecommunications Commission (CRTC). The analysis used 1988 as the test year, assuming that any of the competitive scenarios evaluated was fully mature and operational in that year. In addition, Rate Rebalancing was evaluated as an alternative to competition as it has inherent advantages for the highly rural Prairie provinces.

The Report shows that local/access revenues are below cost by $19.58 per month for the Urban/Intercity network and $43.30 per month for the Rural network. Clearly very large subsidies currently flow to basic service. In the event of CN/CP style competition, basic service rates could rise by as much as $11.16 per month. Thus Urban residential rates could rise by as much as 140% and Rural rates could rise by as much as 168% (reference Table VIII, page 50), even if there were no tendency to recover all local/access costs from these subscribers.

Rural telephone subscribers would also lose in other ways. They do the bulk of their long-distance calling within the province and over short distances. In the U.S., rates for these types of calls have not fallen despite the fact that competition in this telephone industry has existed for a number of years. Thus rural subscribers, who make nearly three times more calls within the province than urban subscribers, would not benefit from competition because they do not make the right type of long-distance call (i.e. inter-provincial calls). In addition, even if a rural subscriber made the right type of call, they would experience lower quality service from the competitor because they would have to dial more digits to obtain access to the competitor's network before they could complete their long-distance call. In short, rural subscribers would be subject to much higher rates for basic service while experiencing very few, if any of the benefits from competition.

In the Federal-Provincial Task Force study, one likely CN/CP competitive case requires a 25% price discount from the telco's long-distance rates to enable it to yield a 20% market share for CN/CP. This is unrealistic. U.S. experience shows that competition obtains 30% and more of total long-distance toll minutes, with discounts of only 5% from AT&T's rates. In Canada, the incumbent carriers, including SaskTel, would have to cut their own long-distance rates by 20% or more from current levels to avoid losing much more than 20% of their markets to the competitor. The impacts of such a competitive model are illustrated in the Report. In addition, because the U.S. experience has shown that the effect of so-called competition is not much more than a rebalancing of rates, the Report shows the results for the case where SaskTel, without the introduction of competition, would have reduced its long-distance rates by 25%. The results are shown in the following table.

Basic Monthly Service Charges
SaskTel 1988
Rebalanced vs. Competitive Scenarios
Equal Percentage Increases for all Subscribers

	URBAN		RURAL	
	Business	Residence	Business	Residence
PRESENT AVG. RATES	$24.53	$7.99	$16.93	$6.65
RATE REBALANCING				
Case R5	$44.51	$14.50	$30.72	$12.07
25% SaskTel Long-distance	81.5% increase	81.5% increase	81.5% increase	81.5% increase
--Rate Reduction	$19.98 increase	$6.51 increase	$13.79 increase	$5.42 increase
COMPETITION				
Case C5	$48.56	$15.82	$33.51	$13.17
CN/CP competition	98.0% increase	98.0% increase	98.0% increase	98.0% increase
20% market share	$24.03 increase	$7.83 increase	$16.58 increase	$6.52 increase
25% price discount				
20% SaskTel price response				
Net Benefit from Rate Rebalancing	$4.05	$1.32	$2.79	$1.10

Under the most likely competitive scenario, where SaskTel would have to cut its own rates by 20% to hold 80% of the market,

while the competitor offers a 25% rate reduction to its 20% of the market, basic service rates would have to rise by 98% (assuming an even percentage increase for all basic service rates) to meet the shortfall in revenues. In comparison, with a 25% cut in all long-distance rates under the Rate Rebalancing case, the increase would be 81%, and all subscribers, rural and urban alike, would obtain the same advantages from the new prices. Therefore, rate rebalancing would result in a substantial reduction in the required increases in monthly charges for basic service subscribers.

A more fully detailed summary of the research appears in the Conclusion to the Report, in Section 6.0.

The Report concludes that, regardless of which of the scenarios in the research is considered, there would have been significant increases in basic service rates. Nevertheless, "...compared to competition, rate rebalancing is a far more equitable and cost efficient method of reducing long-distance rates", and there would be no delay in obtaining the results.

1.0 Introduction

The Communications Ministers of the Prairie Provinces (Alberta, Saskatchewan and Manitoba) met in Calgary in June of 1989 to discuss major issues currently influencing telecommunications. They, during the course of their meeting, determined that the report of the Federal-Provincial-Territorial Task Force On Telecommunications (Competition in Public Long-Distance Telephone Service in Canada) did not fully address the potential impacts of competition on the rural regions and, more specifically, for rural subscribers. They determined that additional analysis was necessary to fill this rural void. It was decided that the Province of Saskatchewan would assume the overall responsibility to provide this additional analysis. Subsequently, Dr. Robert E. Olley, an economist from the University of Saskatchewan, was commissioned to oversee this research and to report the findings. Dr. Olley received cooperation from the Province's telephone company, SaskTel, for information, data and support during the completion of this study.

The terms of reference for the study requested that the analysis show the current relationship between costs and prices of telecommunications services in rural and urban areas. The study was then to determine the potential impacts that competition could have on the costs and prices for telecommunication services for both rural and urban subscribers. In the course of the analysis an alternative method to competition to achieve long-distance price reductions was identified. Rate Rebalancing, which can be effected through direct regulatory action, is analyzed and contrasted to the likely impacts of competition on rural and urban subscribers. The study also contains a critique of the information and findings contained in the Federal-Provincial-Territorial Task Force report.

The following is the final report on the analysis requested by the Prairie Provincial Ministers. The information contained in the analysis is intended to facilitate a realistic assessment of the desirability of competition in long-distance telephone service.

2.0 Background

The question of whether competition in long-distance telephone service is desirable was raised at the meeting of Telecommunications ministers in Edmonton in April of 1987. An agreement was reached to commission a study to explore this topic further. Its findings were reported in Competition in Public Long-Distance Telephone Service in Canada. The impetus for assessing the desirability of competition in long-distance telephone service resulted from the development of competition in the long-distance markets in the United States, the United Kingdom and Japan, and the perception of certain observers that competition in these environments is a positive force and one which should be emulated in Canada. However, this perception is based upon very few facts, since there has not been a comprehensive assessment of the benefits and costs for the specific case of competition in telecommunications in the jurisdictions where it has been implemented. These circumstances suggest that careful study should be undertaken of both the Canadian telecommunications environment into which competition might be introduced and the potential impact that it would have on the performance of telecommunications in Canada.

2.1 Historical Background

Telecommunications services such as those supplied by prairie telcos, including SaskTel, are a critical element to life in the Prairies. Vast, thinly populated areas, with people living in oftentimes harsh climates, have always made communications both very important and very difficult to provide on the Prairies. Thus, Provincial settlers were quickly attracted to the various new technologies as they became available. In 1876 a telegraph line was built across what was to become the Province of Saskatchewan. In 1882 the Canadian Pacific Railroad reached Regina. Three months after the first train steamed through Regina there were 20 telephones in use on ten private lines in the city. By 1884 an innovative telegraph agent was experimenting

with long-distance calling in order to link the Saskatchewan city of Battleford with Edmonton, Alberta.

When Saskatchewan became a Province in 1905 there were already 2,000 telephones in operation within its borders. There was very little long-distance, although this began to change in 1906 when the Bell Company extended its long-distance line from Winnipeg to Regina. However, one difficulty became apparent. The prairie provinces were dissatisfied with Bell because it was moving too slowly in extending its lines to the rural areas. Pressed by its own economic needs, Bell preferred to serve the larger urban areas, leaving rural areas to fare as best they could.

To address this situation, in 1908, the Saskatchewan government passed several key pieces of legislation referred to as the Telephone Acts. The first act, "The Railways and Telephone Department Act", created SaskTel's predecessor -- The Department of Railways, Telegraphs and Telephones. The telephone section of the Act allowed the Department to establish, operate, administer, and expand local service in urban areas and long-distance service throughout the province. A second act, "The Rural Telephone Act", permitted groups of farmers to form rural telephone companies to provide local telephone service to rural areas. Also passed was "The Municipal Telephone Act", which encouraged communities to form municipal telephone companies. As a result of this direct support, farmers and townspeople organized and developed hundreds of rural telephone co-operatives in the province.

In 1909 Saskatchewan followed similar action taken by Alberta and Manitoba when it purchased from Bell its interests in telecommunications in the Province. The Department of Telephones also built its first two telephone exchanges, and purchased two of the larger rural systems in that same year. The Department continued to add to this network by building more lines, and by the end of 1909 had nearly 6,000 subscribers. By 1911 it had 7,000 subscribers and it was on its way to becoming the modern Crown Corporation that it is

today. From 1914 to 1918 it continued to convert its urban exchanges to automatic dial operation, and in 1919 the Department was the first to offer automatic dial service to rural subscribers. By 1924 the percentage of farmers with telephone service was greater in Saskatchewan than anywhere else in Canada. From its beginnings, SaskTel has emphasized access by everyone, rural and urban dwellers alike, to the benefits of the most modern telecommunications services possible.

Throughout this evolution there have been a number of important technological developments. The Saskatchewan section of the TransCanada Microwave System was completed in 1957 and a second microwave system was added in 1968. In 1969 SaskTel joined other telecommunications companies in Canada and the Federal Government, in creating Telesat Canada to provide satellite communications in Canada. In 1972 Telesat launched Anik 1, Canada's first satellite. In 1979 SaskTel put its first digital switch into operation, keeping fully abreast with modern technological developments to improve the system.

The technical and service orientation of SaskTel has resulted in it being a leader in the telecommunications industry. Fibre optics and digital communications are two major initiatives that the telecommunications industry is aggressively pursuing worldwide. SaskTel inaugurated the first leg of its fibre optic network in 1981, which upon completion was the world's first commercial fibre optic link to become operational. Today, SaskTel has an extensive fibre optics network in place which spans over 3200 kilometers. SaskTel will also have converted its entire telecommunications network to digital by 1995; making it one of the first Canadian telcos to do so.

These innovations did not come at the expense or neglect of the thinly populated, hard to reach, difficult to serve areas of the province. SaskTel, from 1977 to 1982, completed a six year, $90 million Rural Service Improvement Program. This program was designed to improve service to rural subscribers by reducing the

number of subscribers on multi-party lines to a maximum of four, and to replace aerial pole line facilities with more reliable underground cable and wire. The program also offered to voluntarily assimilate rural telephone companies. By 1982 SaskTel had absorbed 652 rural telephone companies which increased its number of rural subscribers by 48,000. In 1986, SaskTel became the first Canadian telephone company to initiate a program to replace all of its multi-party lines, serving 73,000 rural customers, with urban quality single line facilities. The $264 million Individual Line Service Program, when completed in 1991, will have provided rural subscribers with the advantages of privacy, convenience and full access to a broad range of services and products previously available only to urban residents. The digital switching modernization program began in 1986 with a $128 million commitment to upgrade rural central offices. A further commitment, in 1987, of $133 million, will upgrade urban central offices. Fibre optic systems carry three modes of communications, voice, data and image, to fifty-two Saskatchewan communities. Virtually the whole province will have access to the Saskatchewan Communications Advanced Network (SCAN), a network that will carry educational, health, and other public interest programming throughout the province.

Organizations supplying service to the whole nation at once, and especially on a strictly for-profit basis, would probably never serve the people of Saskatchewan so comprehensively or so well. It would not pay them to do so. Saskatchewan's extensive experience with other sectors, such as rail transportation, airline service, rail passenger service and postal service, which are also important to regional economic development, shows that neither Federal officials nor other national organizations can be relied upon to meet adequately the needs of the people of Saskatchewan.

Historically, the Prairie telco's including SaskTel, have adopted rating and provisioning policies which have always been guided by the principle that universal access to reliable, modern

communications services at affordable prices is an absolutely essential requirement of service to Prairie residents.

2.2 Role of Telecommunications in Prairie Social and Economic Development

Beyond its technological and service provisioning functions, SaskTel plays a critical role in knitting the Province together socially and culturally. One of the essential elements in this process is that all residents have ready access to common service capabilities to enable them to communicate with one another.

Modern and universally accessible telecommunications services also assist regional economic development and growth. It has been observed that:

> "The role of telecommunications in this development pattern is crucial. As infrastructure for the support of delivery of information products and services, the telecommunications carriage sector has begun to assume the same economic significance as transportation routes have for the movement of products for the resource and manufacturing industries. As demand for telecommunications services grows, it in turn, stimulates growth in the manufacturing sector. The ability of the industry to respond to these demands determines the growth of the telecommunications sector as a whole, as well as its contribution to regional economic development. It has become a core sector of the economy which can generate positive linkages both forward and backward to the suppliers and which can expand through the use of its input."[1]

Nowhere is this more likely to be true than on the prairies in general, and in Saskatchewan in particular, with their vast distances, thin population, and difficult climatic and economic conditions.

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[1] The Coopers and Lybrand Consulting Group, Impact of Telecommunications on Regional Economic Development, April, 1988, p.iv.

The large provincially owned telcos have also played a direct role in economic development, through their own operating policies. As the Coopers and Lybrand study further notes,

> "The Prairie telcos generally prefer to purchase equipment from manufacturers with a presence in the region since they are considered to be more responsive to the carriers' technical and maintenance requirements. This has the effect of stimulating regional economic development."[2]

In effect, the regional control of the Prairie Telcos provides both the incentive and the capability to engage in effective searches for businesses which can be attracted to their provinces. This is particularly important to the industrial development of the Prairie provinces, with their dispersed and geographically thin markets. Prairie experience with national regional development programs has not been very satisfactory; thus, the ability to assist themselves is important to preserve and enhance, wherever it exists.

The Prairie telcos play a major role in the life of the regions that they serve. The fact that communications is fundamental to regional economic development underlines the importance of the telco to the residents of these regions. The telcos are one instrument of economic and social development that has not depended upon outside influences for their being; they are one device that is responsive to the characteristics and needs of Prairie residents. They are in fact, and are perceived to be, controlled by regional officials reflecting regional interests in each province. The service that is supplied by Prairie telcos, such as SaskTel, exhibits the positive attributes of a good telecommunications service provider. It serves all areas of the Province, with leading edge technology that is universally accessible and is supplied in spite of the geographic, climatic and economic conditions. Conditions such as these have in the past and would today preclude a (nationally oriented) private

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[2] Ibid, p.vi

sector supplier of telecommunications services from providing such services.

One only has to compare SaskTel's state-of-the-art national quality telecommunications to the poor airline service from national organizations to catch the flavor of the great differences in quality that can be created if key industries are not focussed on regional needs as well as opportunities. For example, Saskatchewan does not have an international airport and domestic service to/from the province generally is regarded as being poor. This experience also is emulated in broadcasting, a Federally regulated institution. The CBC has proven itself to be insensitive to the effective coverage of regional issues at the National level and it has undertaken exceptionally little production in the Prairies, particularly in Saskatchewan. The service issue reflects the primary orientation of national and private sector firms to large markets and their disinclination to place much emphasis on small markets; the facilities issue demonstrates that the public sector orientation is very much like that of the private sector, including a disinclination to do much for small populations with few votes and therefore relatively little political leverage. As necessary as transportation and communications are for regional economic development, they have, under national and federal government control, not served Saskatchewan nearly as well as telecommunications have.

As a large diversified enterprise responsible for all aspects of telecommunications in Saskatchewan, SaskTel can take the good with the bad (in profit terms) and provide first class service to rural and urban, business and residence, local and long-distance users, throughout the province. It can recognize and fully respond to provincial needs and opportunities.

2.3 Telecommunications Pricing Policies

The orientation of the telcos to province-wide needs on the Prairies leads them to use their monopoly position to provide

equitable access to the system for everyone, and to do so at equitable prices. For example, SaskTel, a monopoly provider, can treat the region as one unit in the setting of its rates. This approach to rate setting is known as value of service pricing with company-wide price averaging.

The value of service principle, which is widely used throughout the industry, serves to make rates equitable. It is a guide to pricing that recognizes that the industry provides services which are worth more to users in some circumstances than in others. By offering service that recognizes varied customer requirements, at attractive prices which reflect the value of service, those services can be made available to the maximum number of customers. For instance, the value of service to an urban subscriber is greater than to a rural subscriber (because more numbers can be reached at the basic charge), although the costs to serve a rural subscriber are greater. By offering service to smaller less populated areas, at lower rates, in acknowledgement of this principle, service is placed within the financial capabilities of the maximum number of people. This, in turn, encourages development, leads to an expansion of the network and increases the value of service to all telephone subscribers.

Company-wide price averaging enables all residents of the province to obtain equivalent services at identical prices. This is important to provincial objectives and is equitable because inordinate disparities that accrue from difficult population densities, geographic and climatic conditions are averaged. It means for example, that the users of a particular long-distance service (rural or urban) pay the same rate for the same kind and extent of service over the same distance, without regard to the geographical location or costs of serving a particular region. People are not disadvantaged in their access to modern telecommunications, because of where they live -- everyone is treated equally.

2.4 Telecom Canada, National and International Service

Coordination of regional telecommunications services into a national and international telecommunications service is assisted by Telecom Canada, a consortium of leading Canadian telcos, including the Prairie telcos. At the national level, service is also reliable, universally accessible and reasonably priced. Telecom Canada facilitates the administrative arrangements associated with a system of revenue sharing and collective provisioning of technical and commercial expertise. This organization has assisted Prairie telcos, such as SaskTel, to meet their corporate objectives and, in so doing, has helped enable them to supply a high standard of telecommunications service to their subscribers. Notably, SaskTel's rates for message toll service have been reduced while the technical standards and service offerings continue to improve through the use of digital switching, digital radio and optical transmission facilities, as well as through improvements to the access network such as individual line service and digital transmission.

Telecom Canada serves at the national level to assist in making available high grade telecommunications services to all Canadians. It does so by assisting its members in developing technical, administrative and commercial procedures to more fully exploit the potential of telecommunications to serve widely varied and ever evolving needs. Thus Telecom Canada performs, at the national level, the same kind of delicate balancing of revenue requirements with costs to provide universal equitable access to service that SaskTel performs at the provincial level.

2.5 Background - Summary

This brief background has outlined some of the complexities of the system which currently serves the telecommunications needs of the Prairies and of Canada. Particularly in the Prairie setting, the art of balancing the telco revenue requirements with the communications needs of the Province is complex and difficult; it

cannot be guided exclusively by profit considerations in any single aspect of the service, for other issues, especially equitable access to communications services for all subscribers, are much more important. The present arrangements on the Prairies have evolved to meet the particular set of needs created in each province by its geographic, economic, social, cultural, and developmental characteristics. Unlike various transportation services, whose control lies in the hands of authorities outside of the Prairie region, telecommunications services provided by Prairie telcos meet Prairie needs comprehensively, dependably, and equitably; they assist cultural, social, technological, and economic development on the Prairies. Their arrangements are delicate enough to require careful management of change, but are sufficiently robust to evolve under present administrative and regulatory approaches to meet Prairie needs. It is against this background that policy, regulatory or administrative initiatives for Prairie telcos, must always be evaluated.

3.0 Review of the Federal-Provincial-Territorial Task Force On Telecommunications report on Competition In Public Long-Distance Service In Canada

The Federal-Provincial-Territorial Task Force was given the task of examining the desirability of competition in public long-distance telephone service in Canada. The Task Force did not attempt to develop recommendations on any possible courses of future action; rather it intended that the report provide an in-depth collection and review of available information regarding competition in long-distance service and its impacts. To accomplish this objective the Task Force commissioned a number of new consulting studies. The following reports were published by the Task Force.

Final Task Force Report
Competition in Public Long-Distance Telephone Service in Canada, Federal-Provincial-Territorial Task Force On Telecommunications, December 1988

Consulting Report 1
A Profile of the U.S. Experience with Competition in Public Long-Distance Telephone Service, Brownlee Thomas, Ville LaSalle, Quebec, June 1988.

Consulting Report 2
A Study of Selected Impacts of Competition in the U.S. Long-Distance Telephone Industry, Economics and Technology, Inc., Boston, Massachusetts, July 1988.

Consulting Report 3
The Effect of Changing Technology on the Structure of Costs for the Provision of Public Long Distance Telephone Service, The Coopers & Lybrand Consulting Group, Toronto, Ontario, March 1988.

Consulting Report 4
The Effect of Toll Competition on Prices, Costs and Productivity of the Telephone Industry in the United States, David Chessler and Associates, Bethesda, Maryland, March 1988.

Consulting Report 5
Elasticity of Demand for Long Distance Telephone Service, Steven Globerman Associates Ltd., Vancouver, British Columbia, February 1988.

Consulting Report 6
Market and Other Non-Price Factors Affecting Competition in Public Long Distance Telephone Service, Nordicity Group Ltd., Ottawa, Ontario, March 1988.

Consulting Report 7
The Financial Impacts of Competition in Public Long Distance Telephone Services On Canada's Telephone Companies, KPMG Peat Marwick, Toronto, Ontario, August 1988.

These reports provide important information, data, facts and interpretation of competition and its demonstrated and/or potential impacts. They contain a useful review of the experience of the United States in allowing multiple providers of long-distance service to develop in this market. The reports also review some of the more important factors (eg. economies of scale and scope, elasticity of demand, non-price factors), which influence the analysis of the possible impact of competition in the Canadian market. These reports have been provided to policy-makers and the public to assist in the consideration of public long-distance telephone service competition.

One of the most important issues which must be addressed in any evaluation of the potential impacts of introducing competition in the long-distance market, is the question of economic impacts. Therefore, it is useful at the outset to review the economic theory which must be operative and whose conditions must be satisfied for competition to produce the benefits it sometimes can in particular industries. The following section discusses the economic and organizational conditions which are operative in competitive markets which work well.

3.1 Theory of Competition

Economic theory establishes competition as a desirable organization of industry because, when all its conditions are met, production occurs at the lowest possible cost per unit of output. In addition, firms in a competitive market have the maximum possible

incentive to experiment with new products, find new cost cutting technologies, and otherwise seek better ways to serve customers. The conditions of this theory are very stringent. There must be large numbers of firms, so that no one firm can have any significant impact on the market should it expand production or close down. Indeed, the firms are each so small relative to the market as to be anonymous. Exit and entry must be easy, so that existing firms do not enjoy any capacity to make excess profit (because of easy new entry), and so that inefficient firms will leave quickly, avoiding degradation of product quality as a result of struggles by these firms to cut costs by any expedient available. Finally, there must be high levels of information in the hands of both firms and customers, so that firms know when to enter or leave, and so that customers can switch from firm to firm at the appearance of the smallest price or quality advantage to themselves. Many markets with only a few firms can and do perform well because entry is easy, as is exit, so that the market can behave as if there were a large number of potential entrants which could appear and be effective sellers within a short period of time. If <u>any</u> of these conditions are not met, then a market will fail to produce the possible benefits of competition, and will perform worse than a monopolized, regulated market.

Not all real world markets can be expected to be competitive. This occurs because the available quantity of demand is only large enough to support one or a few firms producing as efficiently as possible to serve available demand. Thus, to take the single firm case, as one firm expands its output its costs per unit of production decline continuously, through to quantities at or beyond the available market at any price. This case is referred to as natural monopoly, and the measure for the underlying economic condition for natural monopoly is called economies of scale, or, where two or more products are being produced, subadditivity (sometimes improperly called economies of scope).

Markets which are natural monopolies are thus characterized by declining unit costs of production over the entire possible range of

saleable output. Such markets can suffer from lack of incentive for the firm to cut costs, to seek new technologies, to experiment with new products, or to find more desirable pricing schemes for their output. Both theory and experience warn of these possible problems. However, they need not materialize. Where the firm produces high technology outputs which are part of broader systems, the firm must keep abreast of the performance of other parts of the system or it will begin to suffer both public and customer pressure to improve. When other firms, in other parts of the country, produce the same kinds of products, then comparisons give rise to external pressure if the firm becomes cost inefficient, or insensitive to the need for new product varieties or pricing schemes. Thus the possession of natural monopoly status by a firm provides it with somewhat limited opportunity to indulge in the kinds of conduct which give rise to the possible problems of monopoly. This is especially true when the firm's output is important to its users, as in telecommunications.

Where natural monopolies are important to the public welfare or the day-to-day functioning of society in an immediate sense, they are referred to as public utilities and their activities are regulated by one means or another, to make them as responsive as possible to the needs to price reasonably, and to respond to opportunities to improve their performance. While there are problems with regulation, it can prevent excess profit, unacceptable pricing schemes, and lagging response to new product or pricing opportunities. The key problem with regulation is often that, for its own reasons, the regulator mandates or allows inappropriate pricing schemes by the firms; then when change is clearly due the regulator itself lacks the will to correct those practices which it has allowed, encouraged, or even mandated in the past, within the existing industry structure.

Unfortunately there is no easy solution to this problem. However an attempt to create competition in a natural monopoly market cannot work to decrease costs. To the contrary, it increases costs and, where only two or three firms can be artificially sustained under the umbrella of regulated competition (market sharing), it

creates other serious performance problems for the industry. Both theory and experience indicate that a two or three firm market will likely perform much worse than a regulated monopoly. Even markets with many firms will perform poorly if one firm is dominant. Thus the presence of significant natural monopoly conditions in a market should lead to a search for methods of improving the regulatory requirements of the natural monopoly, rather than to an attempt to create artificial competition.

There are sufficient indicators contained in the information supplied by the Federal-Provincial-Territorial Task Force to illustrate that there is no sound economic justification to warrant the introduction of competition in the Canadian market. The next section, which reviews the material contained in the Task Force Reports, indicates just how weak the argument for competition in Canadian telecommunications really is.

3.2 Review of Key Findings Contained in the Federal-Provincial-Territorial Task Force Report

The United States and Canada are the only countries in the world where the performance of telecommunications firms is comprehensively regulated by quasi-judicial bodies. Regulators, in both countries, have been sensitive to the fact that access costs are the most apparent, and the most clearly unavoidable costs to anyone seeking access to the network. As a result, it has been historically true since World War II that the benefits of technological change and economies of scale have been accrued to the benefit of local access.

> "In the years prior to divestiture [in the United States], actual costs of long-distance service had been declining because of major technical advances, and local costs had been edging up. As a way of avoiding unpopular local rate increases, regulators and carriers over time agreed to allocate more of the local fixed costs to interstate long distance. That way, long distance rates did not decrease as much as they would have otherwise, and both rural

and urban residents got the benefit of cheaper local rates."[3]

Thus, cost of basic service to subscribers has been held down, despite the fact that a very large fraction of new technology has served to reduce long haul cost, and despite the fact of large economies of scale in long haul[4]. Thus, by the end of the 1970's it was true (and remains true in Canada) that long-distance rates are very much above costs because they contribute to covering overheads and access costs to a high degree. Concomitantly, basic service (access) prices are far below costs. As a consequence, prices are not at all closely related to costs because the regulators have been able to allow or even require the incumbent telephone monopolies to use their status as monopolies to hold basic service (access) prices well below costs and make up the losses from long-distance charges. The government owned telcos on the Prairies have followed the practice of the rest of the continent because these practices were socially and politically equitable according to contemporary perceptions. Regulators could change those practices any time they chose, had they the will to do so. Were competition to emerge, such practices, historically sanctioned by regulators, could not continue, whatever anyone might wish.

The possible advent of competition in long-distance voice services in telecommunications will, if it materializes, have serious adverse price consequences for some classes of service and on some groups of users of telecommunications services, particularly the rural users. It is important, therefore, to assess those consequences. It is also important to determine how to keep the adverse impact to a minimum for those users who do not make extensive use of long-

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[3] E.B. Parker et. al., Rural America in the Information Age: Telecommunications Policy for Rural Development, University Press of America, 1989, p.53

[4] The Coopers & Lybrand Consulting Group, The Effect of Changing Technology on the Structure of Costs for the Provision of Public Long Distance Telephone Service, Toronto, Ontario, March 1988, p.III-31.

distance services, if it is deemed desirable to abandon the previous pattern of telecommunications pricing in favour of one that is more related to costs.

The Federal-Provincial-Territorial Task Force Report provides information on the prices for telecommunication services during the period where competition became prevalent in the United States market[5]. An examination of the historical index of the price of overall telephone service indicates that the general trend of declining telephone service prices was reversed in 1981; prices then began rising faster than the general Consumer Price Index for all goods and services (Exhibit 3-1). This can be compared to a similar price index for the Canadian telecommunications market which shows a continuing downward trend during the same period where U.S. price indices were increasing (Exhibit 3-2). Other indicators show that the prices for various components, which make up the total telephone index, have shifted in different directions in the United States. Exhibit 3-3 shows that since 1981 Local Service prices have risen dramatically, Intrastate Toll rates are virtually unchanged from the 1981 level, while Interstate rates have declined to about two thirds of the 1981 level. The Task Force Report identifies the impacts of these rate changes on different classes of users in the United States during the period of competition[6]. Residential, small business and rural subscribers, who make few long-distance calls and whose long-distance calls are primarily of a short distance, have experienced increases in telephone prices due to increases in local rates and short-haul long-distance rates. An additional detrimental impact, on residential subscribers in general, has been the reduction in long-distance rate discounts (such as evening and weekend discount periods) traditionally enjoyed by these subscribers. The benefactors

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5 Federal-Provincial-Territorial Task Force On Telecommunications, Competition in Public Long-Distance Telephone Service in Canada, December 1988, pp.43-45.

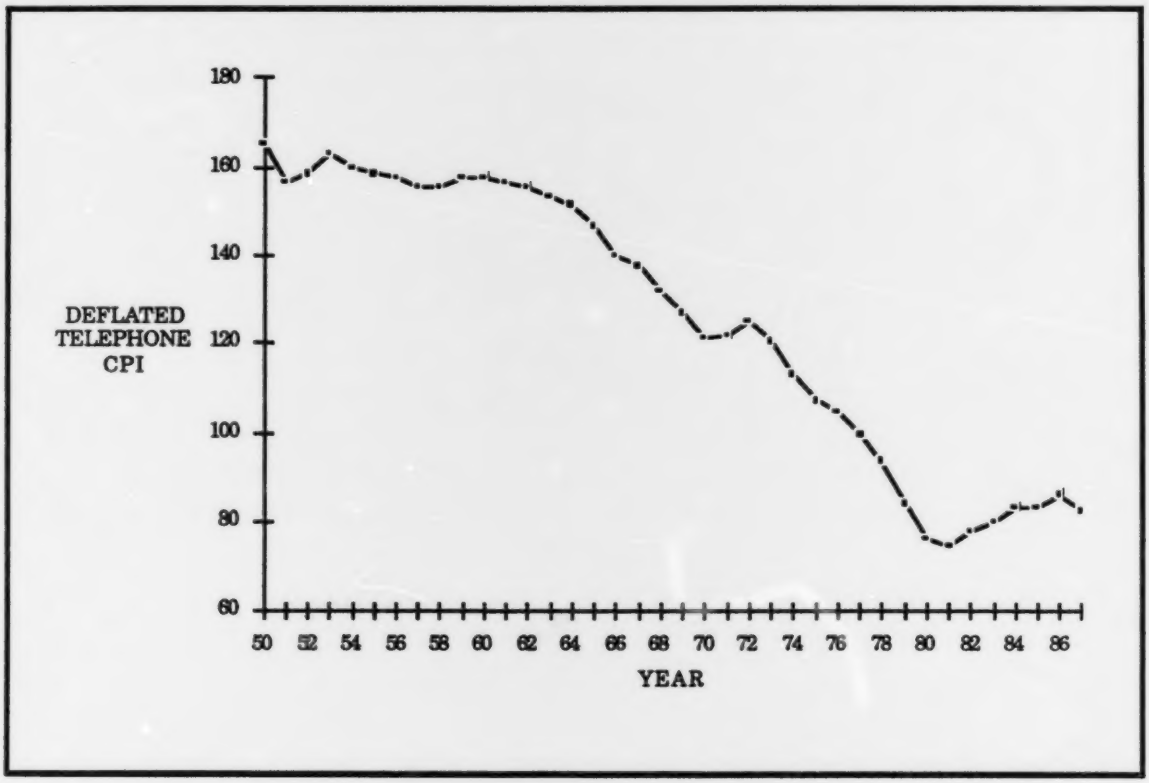
6 Ibid, p.53.

EXHIBIT 3-1

from the Federal-Provincial-Territorial Task Force Report

U.S. Telephone CPI Deflated by Total CPI

(1977 = 100)

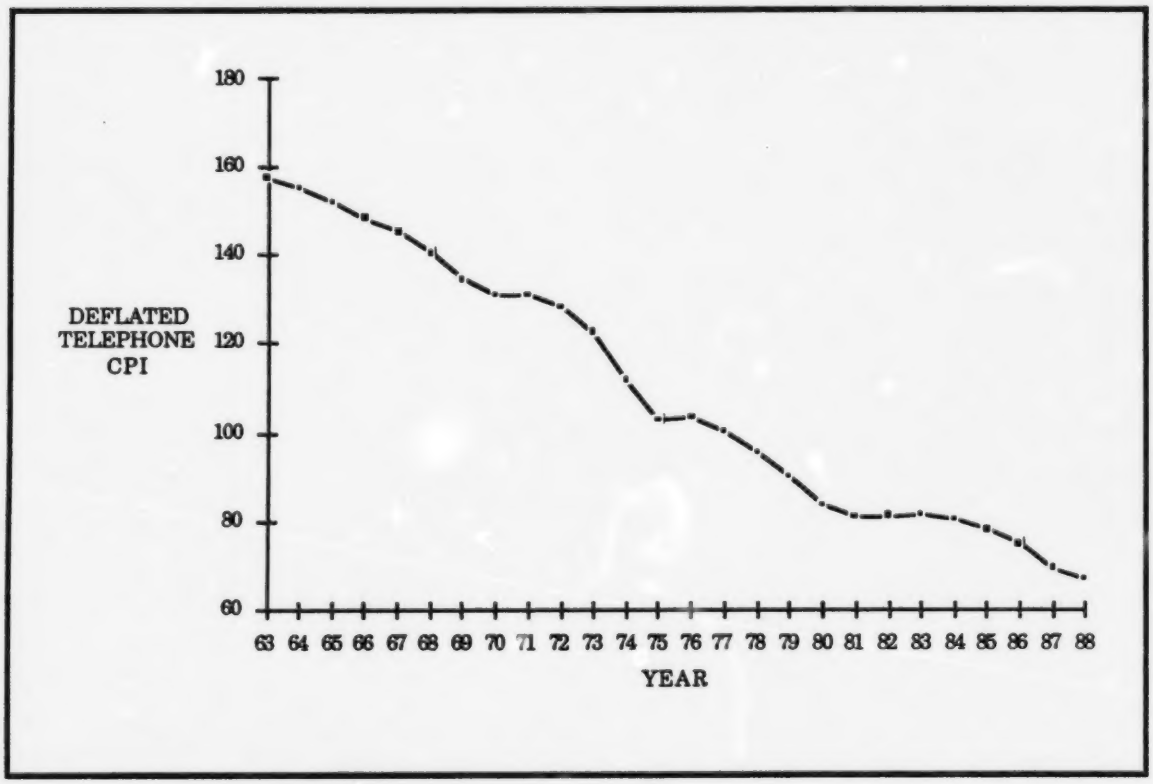


Source: **Federal-Provincial-Territorial Task Force Report, Exhibit 3-14**

EXHIBIT 3-2

Canadian Telephone CPI Deflated by All-Items CPI

(1977 = 100)



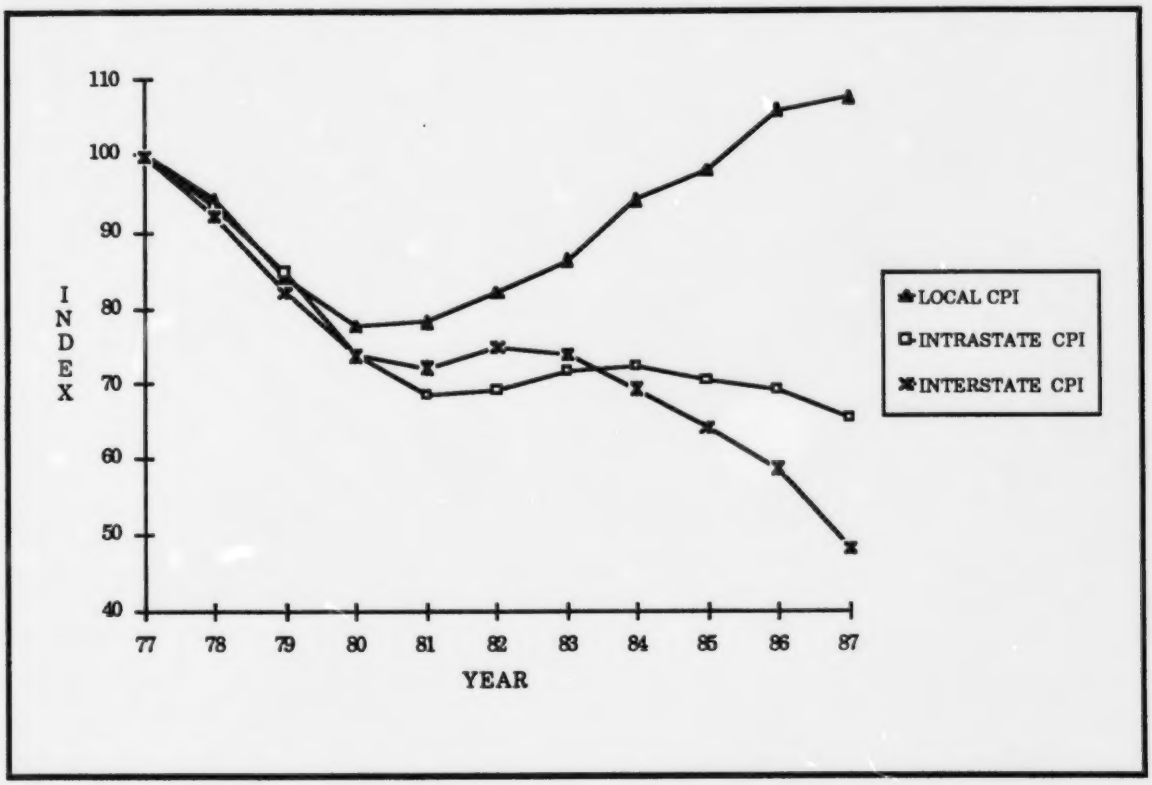
Source: Statistics Canada Data

EXHIBIT 3-3

from the Federal-Provincial-Territorial Task Force Report

Deflated U.S. Telephone Price Indices

(1977 = 100)



Source: Federal-Provincial-Territorial Task Force Report, Exhibit 3-15

from price changes are primarily business subscribers who do a significant amount of long-haul toll calling, especially during the peak business hours, where rates have decreased to the greatest degree.

It has been suggested that competition can lead to greater innovation in technology and services. The Task Force Report, however, has found that "Canadian telephone companies appear to have kept pace with international technological developments, and have built one of the most modern and functionally efficient telecommunication networks in the world"[7]. This has been accomplished in the absence of competition. There is no evidence which suggests that competition in the U.S. over the last decade, has led to either identifiable improvements in the quality of service, or innovation in the types of service provided to subscribers.

The most significant change which has been identified is the availability of numerous service "packages" which differ from each other primarily with respect to price and not to service capabilities[8]. While providing new pricing options for traditional services is important to some subscribers, the Consulting Report states that,

> "In some areas, the new U.S. telephone industry structure has created additional confusion and complexity, particularly for residential customers who may generally be unaware of the changed industry structure and the various alternatives and options available in the long-distance market. For business customers, competition for private line services and fragmentation of that market have introduced other complexities that can result in delays in service

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[7] Ibid, p.84.

[8] Ibid, p.85.

ordering, billing errors, and confusion concerning tariff structures"[9].

As the Federal-Provincial-Territorial Task Force has observed, long-distance services currently make a very large contribution to common costs and overhead in the rest of the networks of each of the carriers. Therefore, when long-distance service is provided as an incremental service to local/access service, and to intra-provincial service in some cases, it is priced well above the incremental cost of providing it alone. Thus, long-distance service, provided when someone else already provides local service networks, appears to be enormously profitable. That apparent profit is a very strong incentive to would-be entrants to seek permission to enter and under-cut the current prices of the incumbent carriers. Should such entry take place it is inevitable that local rates will have to absorb a larger share of common costs and overheads for the telecommunications systems as a whole in each province. Local rates will rise sharply, as they have in the U.S.

It is important to note that, as the Task Force consulting reports show, competition in MTS and WATS service in the United States was not introduced as the result of any but the most superficial economic analysis of the benefits therefrom[10]. Whatever rate reductions that have followed have not been

> "...a direct consequence of competition itself; they result(ed) from the FCC's policy of shifting non-traffic-sensitive cost recovery from carriers to customers, which could have been accomplished entirely ...[without]... a competitive long distance policy."[11]

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[9] Economics and Technology, Inc., A Study of Selected Impacts of Competition in the U.S. Long-Distance Telephone Industry, Boston, Massachusetts, July 1988, p.v.

[10] David Chessler and Associates, The Effect of Toll Competition on Prices, Costs and Productivity of the Telephone Industry in the United States, Bethesda, Maryland, March 1988, pp.1-2.

[11] Economics and Technology, Inc., A Study of Selected Impacts of Competition in the U.S. Long-Distance Telephone Industry, Boston, Massachusetts, July 1988, p.iv.

Finally, the consulting reports show that there have been very substantial new costs created by competition in American telecommunications; in summary, those costs are shown as a loss of gains in total factor productivity (that is, of increases in efficiency). Productivity gains have been at unprecedented low levels for the telecommunications industry in the 1980's, and have been negative for the three (3) years 1984 to 1986[12].

> "The decline in total factor productivity,...suggests that competition in this [telecommunications] industry may require more capital, and may consume the capital faster, thereby reducing the output per unit of capital."[13].

Competition in the United States was not introduced as the result of having carefully identified economic benefits, did not produce rate decreases, and did usher in a protracted period of low and negative total factor productivity gains. From an efficiency point-of-view the benefits of competition are thus established neither in theory nor in practice in American telecommunications.

This is not surprising. Transition costs are high and will exert a protracted but one-time, negative effect on efficiency in producing services. Under competition, particularly in telecommunications, coordination costs will experience a sharp increase, and will remain permanently to be absorbed. Many costs of a competitive industry, such as advertising, promotion, and market experimentation costs will rise sharply, remain at enhanced levels, and be in significant part wasteful, thus also reducing productivity gains as these expenses build up, perhaps permanently. Possibly far more important is the impact of market fragmentation in raising

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[12] David Chessler and Associates, The Effect of Toll Competition on Prices, Costs and Productivity of the Telephone Industry in the United States, Bethesda, Maryland, March 1988, pp.103-112

[13] Ibid, p.106

costs by causing a loss of opportunity to harvest the benefits of economies of scale.

The existence of economies of scale means that, for any firm, the average unit cost of production decreases as the volume of output increases. Market fragmentation, under this circumstance, reduces firm volumes from otherwise attainable levels and thereby raises average unit costs; this depresses or even causes negative measured total factor productivity (or efficiency) gains.

In Canada there are economies of scale throughout the entire relevant range of output of telecommunications services taken as a whole. This is shown in Consulting Report 3[14], for each of the four different study approaches. The Report goes on to show that there are economies of joint production (subadditivity or scope) demonstrated by some approaches. The Report does not find economies of joint production from econometric studies. The Coopers & Lybrand Consulting Group apparently did not have available to it a massive review of econometric studies which was published in March of 1987[15]. In that review the authors summarize, re-estimate, and discuss most of the major models ever produced for North American Telecommunications firms. (In two cases, major models had to be corrected for mathematical or statistical problems). They show that there are always economies of scale for joint outputs, and that two output models (local and message toll) always show economies of joint production. Therefore, in telecommunications, economics of scale exist over a very wide range of production levels and at all levels they are accompanied by economies of joint production. Hence, this review article reports findings which extend

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[14] The Coopers & Lybrand Consulting Group, The Effect of Changing Technology on the Structure of Costs for the Provision of Public Long Distance Telephone Service, Toronto, Ontario, March 1988.

[15] Ferenc Kiss and Bernard LeFebvre, "Econometric Models of Telecommunications Firms: A Survey" Revue Economique, Volume 38, Numero 2, Mars 1987, pp.307-373.

and generalize the finding of Consulting Report 3, that there are economies of scale and scope (in the relevant ranges of output mixes) in telecommunications production. This is an extremely important corroboration of the Report's results, because it fills in the one area of the work wherein the authors were somewhat uncertain about the available results.

With these results and those of the Consulting Reports, it now appears all but completely certain that fragmentation of the Canadian telecommunications market will impose very substantial and unnecessary additional costs on users as a whole. While some users will benefit from lower long-distance rates, others will experience unnecessarily increased prices. Any given degree of reduction in long-distance rates can be achieved at significantly lower cost to those who must pay more, without using competition as an indirect and costly device to do what regulators could now do straightforwardly, if they wished.

Competition, or any form of market fragmentation in Canada, will impose unnecessary increases in costs on those who will have to bear increased costs under any rate re-balancing mechanism. In return, neither long-distance nor intra-provincial service users will obtain any new benefits which could not be obtained now through changes in historical regulatory practices. As previously noted, American experience indicates that the principal product innovation impact has been variety in pricing packages. This variety is appearing in Canada already, and can be elaborated in any manner chosen, without incurring the direct costs and costs of lost economies of scale that are associated with market fragmentation resulting from competition. For better or worse, competition of sorts already exists in the United States; any innovations which do not occur to the Canadian carriers or their regulators from their own experience, can be copied from the experience of the American Carriers, if they are feasible in Canada. Basic technological innovation will remain governed by the forces currently at play, with or without competition, except that with competition the sources of funds to finance research

and development may be reduced, thereby reducing the volume of research.

Finally, there is one very negative side to competition where there are only a small number of competing firms. The consulting reports point out that if competition means only a small number of firms, with one or two dominant ones, (that is, unless competition means very many firms, with no dominant ones) then the industry performance is likely to deteriorate very significantly because of poor resource allocation[16]. Thus, in dynamic terms, the putative benefits of competition only materialize when the industry is such that the firms are numerous. This outcome is extremely unlikely in Canada.

If movement of toll rates toward cost, and increased variety in pricing packages are the objectives, there are much less disruptive and less costly ways to achieve this within the present framework of regulated near-monopoly for Telecom Canada members. All studies show that the burden on those who will have to shoulder a much greater share of the non-traffic-sensitive costs will already be high and uncompensated by offsetting benefits from toll rate reductions. Under those conditions it is urgent that the least cost method of achieving the desired objectives be adopted. As far as one can judge from the available evidence, competition in telecommunications services is an unnecessary and extremely costly way of achieving a more efficient pricing system. Duopoly, that is, only two firms, is the worst of all forms of artificial competition in terms of the results to be expected.

It is extremely important that the potential impacts of competition on the various classes of telecommunications service users be assessed carefully. The Federal-Provincial-Territorial Task Force has identified the potential impacts on subscribers generally.

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16 David Chessler and Associates, The Effect of Toll Competition on Prices, Costs and Productivity of the Telephone Industry in the United States, Bethesda, Maryland, March 1988, pp.35-38 and especially p.39.

The present study expands upon the work of the Task Force in two ways. Firstly, it measures the inherent differences between revenues and costs in the telecommunications network for rural and urban subscribers in 1988. This analysis demonstrates how the delicate balance between the present level of costs and revenues occurs. Secondly, the study extends the Task Force's examination of the financial impacts on subscribers which would occur should competition be introduced.

The findings of these studies provide insight into the question of whether competition in telecommunications is desirable. In particular, they demonstrate that the financial impact on rural subscribers will be substantial, since the rural network is heavily subsidized by the urban/intercity network. The findings also reveal that rate rebalancing, which, according to the Task Force's background studies, is nearly all that competition has achieved in the United States, can be implemented through direct regulatory action and will result in more equitable and in more efficient service than would be the case in the event of competition.

4.0 Study Methodology

The present study was initiated by the Prairie provinces and a decision was made to use the Province of Saskatchewan as the study province.

The initial objective of the study was to assess the potential impacts of competition in public long-distance telecommunication service, specifically for the case of Rural and Urban subscribers. It became apparent during the course of the analysis that a second approach to achieve lower long-distance rates should be considered. This second approach was Rate Rebalancing.

The analysis in this study was performed in two stages. The first stage was to identify the cost and revenue relationships that are inherent in the telecommunications network in 1988 for the principal categories, Rural and Urban. This identified the degree to which non-traffic sensitive access costs are being met by revenues from other than local service, and provides a benchmark against which the impacts of competition or rate rebalancing can be assessed. The second stage of the analysis examined the potential impacts which competition or rate rebalancing would have had on rural and urban subscribers had competition or rate rebalancing been fully matured in 1988.

The definition of the Rural and Urban network categories is an integral requirement of the study and is premised upon the answer to the question of where a competitor's network would be located. Information from the Federal-Provincial-Territorial Task Force was used to assist in the development of this definition.

The Task Force relied on input from CNCP's "Application For Review of Telecom Decision CRTC 85-19", and additional information

received directly from CNCP[17] to develop the model of a national competitor's long-distance network which would compete with the established networks of the incumbent telcos. The model used by the Task Force,

> "...assumes that 85 per cent of the combined population of the served provinces or territories would be able to subscribe to the services of the alternative facilities-based carrier. Under a scenario in which competition is assumed throughout Canada, the following would be the minimum number of major population centres served by alternative facilities-based carriers in the various provinces and territories: [the table shows Saskatchewan as 5 cities]"[18]

In Saskatchewan, to come anywhere near to the 85% level of subscribers being served, the competitor would have to establish its network to serve all twelve of the Province's cities. One must assume that for rural subscribers, the competitor would make use of a series of WATS lines to provide access to the network[19].

Therefore, the Urban Network in Saskatchewan is defined to be the local/access network for each city and the long-distance network which interconnects both each city and the province to Canadian and International telecommunications. The Rural Network then becomes the local/access and long-distance network which serves all of the subscribers who are located in the Province's small towns, rural and remote areas.

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[17] Federal-Provincial-Territorial Task Force On Telecommunications, Competition in Public Long-Distance Telephone Service in Canada, December 1988, p.6.

[18] Ibid, pp.164,166.

[19] Nordicity Group Ltd., Market and Other Non-Price Factors Affecting Competition in Public Long Distance Telephone Service, Ottawa, Ontario, March 1988, p.15.
The use of WATS to obtain access to the toll network requires a two stage dialing process. The subscriber first dials an 11 digit 800 number (1-800-###-####), then upon obtaining the second dial tone, the subscriber dials the area code and 7 digit telephone number of the party he or she is attempting to reach (a total of 21 digits).

This demarcation is consistent with the classification used by SaskTel for its exchange area rate groupings, where rate group 1 exchanges (rural farms and small towns) are classified as the Rural network and the combination of rate groups 2 and 3 exchange areas, which encompass all Saskatchewan cities (Estevan, Melfort, Melville, Lloydminster, Moose Jaw, North Battleford, Prince Albert, Regina, Saskatoon, Swift Current, Weyburn, Yorkton), are classified as the Urban/Intercity network. It also corresponds to one reasonable delineation of the territory served by a competitor and that solely served by SaskTel.

4.1 Costing Study

The study separated costs and revenues for SaskTel's telecommunication network by subscriber category. Four network sub-categories were employed. These were Urban/Intercity Business and Residence, and Rural Business and Residence. In addition a fifth category was used to contain revenues and costs from non-network sources, such as the provision of terminal gear and competitive network services. Common costs and revenues were also identified as a separate category.

The data for the study came from SaskTel's Business Management Information System (BMIS) and other key financial and operating records. The data are for the 1988 fiscal year. The costing methodology employed in the study is generally consistent with Bell Canada's Phase III Cost Study Methodology. This methodology has been approved by Bell's regulator, the Canadian Radio-television and Telecommunications Commission (CRTC).

Competition or rate rebalancing would affect the financial performance of the access and toll networks. Therefore the cost findings are presented in the two major cost categories, Urban/Intercity and Rural Network. The total of these costs reflect

SaskTel's entire monopoly toll and local operations. The study results illustrate the status quo subsidy requirement for each of the network categories.

4.2 Financial Impact Study

The analysis of the impact of competition and rate rebalancing was carried out in two stages. First, the impact on SaskTel's revenues of either competition or rate rebalancing was identified under a variety of scenarios that were judged to be reasonably possible. These scenarios, for competition, are referred to as CNCP competition since the source information upon which the study was premised came from the data inputs which were used by the Federal-Provincial-Territorial Task Force. The Task Force information was obtained from CNCP's proposal for implementing competition in public long-distance telephone service. The study also took into account that a competitor would be required to pay fees to the incumbent telco for common carrier line costs, central office costs and transport costs, on each minute of traffic the competitor obtains. Rate rebalancing scenarios were developed in the study to reflect the financial consequences of various degrees of rate rebalancing, and to permit close comparisons with the competitive scenarios.

Once the financial, or revenue requirement consequences of the scenarios were developed for 1988, a further analysis was carried out to show the impact on rural and urban subscribers. Shortfalls in revenue requirements are assumed to be met by raising rates for basic service, as has occurred in the United States. Basic service rates could be raised by constant percentages across all subscribers, or by constant dollar amounts, depending on the rating philosophy adopted. It is both of these impacts that are reported in the next section. They represent the ultimate consequences of competition or rate rebalancing, and it is these consequences which constitute the economic and social impacts which will have to be taken into account in evaluating the desirability of competition.

5.0 Study Results

5.1 Costing Study Results

The costing study separated SaskTel's 1988 monopoly toll and local costs and revenues into the Rural and Urban/Intercity Network categories. Table I shows the study results. There are substantial subsidy requirements inherent in the current local/access telecommunications network. Urban access received an average subsidy of $19.58 per line, per month, in 1988, from all revenue sources. Rural access received a subsidy of $43.30 per line, per month, more than twice that of the average urban access line. These results are consistent with current industry perceptions that the cost to install and maintain local access is substantially greater in the rural and remote areas than in the urban areas, and that even in the urban areas, access cost is substantially greater than current access revenue.

These results are important in the assessment of any potential impact on the continuing ability of the incumbent telcos to subsidize these network costs. They demonstrate the financial magnitude of the historical tendency in telephone company pricing policy to subsidize local/access costs from toll revenue sources, to average the costs of the network over all subscribers and to set rates for local/access based on value of service rather than actual costs. Thus toll revenues meet a very large portion of the local/access costs. Moreover, the potential price increases for rural service are truly massive, should competition, or any other force, drive the incumbent telcos toward cost based pricing.

The costing study further identifies the toll revenues that are generated by both of the rural and urban/intercity networks. Table II shows all revenues and costs for each class of subscriber on an access line basis. Taking toll revenue and costs into account, the urban/intercity network generates an average surplus of revenue of $10.43 per line, per month. However, even with toll revenue taken

Table I

Local/Access Subsidy - SaskTel 1988

	URBAN/INTERCITY NETWORK	RURAL NETWORK
Average Local/Access Revenue per line, per month	$12.77	$8.84
LESS: Average Local/Access Costs per line, per month	$32.35	$52.14
Average Subsidy per line, per month	**$19.58**	**$43.30**

Source: Analysis of SaskTel Operating Data

Table II

Total Surplus or Deficit Per Access Line For Urban/Intercity and Rural - SaskTel 1988

	URBAN/INTERCITY NETWORK	RURAL NETWORK
Average Revenue (toll & local) per line, per month	$51.60	$59.63
LESS: Average Cost (toll & local) per line, per month	$41.17	$71.61
Surplus or Deficit (-) per line, per month	**$10.43**	**$-11.98**

Source: Analysis of SaskTel Operating Data

into account, the rural network shows an average revenue deficit of $11.98 per line, per month. These findings indicate that there is a very high degree of subsidy within the current price structure, from the urban/intercity network to the rural network. Accordingly, any action which would erode either toll revenues in general, or to a greater degree, toll revenue generated by the urban/intercity network, will potentially create extreme detrimental impacts on the current price structure of the rural network.

5.2 Financial Impacts of Competition

The first set of analyses deals with the consequences of the appearance of competition as described in Section 4. They illustrate the impact of competition on the current level of revenues and costs of the telephone company. The study utilized SaskTel data for fiscal year 1988. In each scenario, the financial impact is evaluated on the basis that the competitor and any price reductions were fully operational in 1988.

The competitive scenario which was examined was based on a competitive scenario examined by the Federal-Provincial-Territorial Task Force and subsequently modeled by the Task Force in the Facilities Based Carrier Model. More specifically, the scenario is based on a competitive market where the competitor is intended to obtain 20% of the incumbent telco's total long-distance market while offering a 25% rate discount from the telephone company's long-distance rates. Beyond that, the present study analyzed the eventuality of the incumbent telephone company introducing rate reductions, in response to the competitor's rate discounts, in order to maintain its market share.

Given the demands from various sectors for lower long-distance rates, it is reasonable to expect that a competitor would offer long-distance at a discount level as least as great as 25%. However, there is no chance that the incumbent telcos could retain 80% of their

market if competitors were offering a 25% discount from telco long-distance rates. It is clear, based on information from the Task Force's evaluation of the market in the United States, that even at much lower percentage differences between rates, the incumbent telcos cannot retain 80% of their market. Retention of that market share would require the telcos to offer rate reductions of their own.

The period of equal access competition in the U.S. has shown that with as little as a 5% price discount on average[20] from AT&T's rates, the Other Common Carriers (OCC's) have been able to keep well in excess of 20% of the total U.S. long-distance market. The market share of the OCC's in the U.S. has been estimated to be 30% of total message minutes in 1987[21] and..."in fact, has been increasing even with lower price differentials"[22]. Therefore it is apparent that if telcos do not respond with their own long-distance rate reductions they would certainly lose far in excess of a 20% market share to the competitor. In order to account for this effect, the competition impact analysis included a set of scenarios where the telephone company would have had to implement price reductions in long-distance rates of 5%, 10%, 15% and 20% respectively, in response to continuing loss in market share to the competitor. Even under the 20% telco price response scenario the effective differential between the competitor's

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[20] Nordicity Group Ltd., Market and Other Non-Price Factors Affecting Competition in Public Long Distance Telephone Service, Ottawa, Ontario, March 1988, p.51,56,57 and exhibit 5-4; and
David Chessler and Associates, The Effect of Toll Competition on Prices, Costs and Productivity of the Telephone Industry in the United States, Bethesda, Maryland, March 1988, p.133.; and
Economics and Technology, Inc., A Study of Selected Impacts of Competition in the U.S. Long-Distance Telephone Industry, Boston, Massachusetts, July 1988, p.52 and Figures 2.7 and 2.8 on pp.53-54.

[21] Economics and Technology, Inc., A Study of Selected Impacts of Competition in the U.S. Long-Distance Telephone Industry, Boston, Massachusetts, July 1988, Figure 2.12 on p.59.

[22] Nordicity Group Ltd., Market and Other Non-Price Factors Affecting Competition in Public Long Distance Telephone Service, Ottawa, Ontario, March 1988, p.57.

and the telco's long-distance rates would still be approximately 6% to 7% which is above the price differential currently operative in the U.S. market. Therefore, in a competitive telecommunications environment, it is likely that the incumbent telcos would have to cut their long-distance rates by more than 20% to hold 80% of their market, against a competitor cutting its rates by 25% from current levels.

At the aggregate level, the financial analysis of competition showed that should SaskTel be able to retain 80% of its market without implementing discounts in its own long-distance rates, it would experience a revenue shortfall of $30.8 million. However, in the most likely scenario, where SaskTel would have to cut its rates by 20% to retain an 80% market share, the revenue shortfall rises to $67.9 million. The significance of these revenue shortfalls is of course their impact on the subscribers' local rates which would have to rise to meet SaskTel's revenue requirements.

The results of the financial analysis of the impact of competition, for individual subscribers, are portrayed in Tables III and IV. These impacts are expressed in terms of the increased monthly rates for basic service that each subscriber would have to pay, based on the results of each of the competitive scenarios examined. All of the cases shown in Tables III and IV embed increased volumes of long-distance services sold as prices fall, according to the price elasticity of demand for each class of service. This parallels the Task Force's treatment of the price elasticity of demand[23]. It is also important to note that in all cases the amount of increase in monthly rates for basic service rises as the SaskTel price response increases. Absent such price responses by the telco, loss of

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[23] Federal-Provincial-Territorial Task Force On Telecommunications, Competition in Public Long-Distance Telephone Service in Canada, December 1988, Section 4.3 pp.112-114; and
KPMG Peat Marwick, The Financial Impacts of Competition in Public Long Distance Telephone Services On Canada's Telephone Companies, Toronto, Ontario, August 1988, p.117.

market share greater than 20% would have forced even larger increases in basic service rates, proportionate to the loss in market share which the price responses are intended to prevent.

Table III shows the results that would occur if the revenue losses resulting from competition were recovered through equal percentage increases in the basic monthly charges for all subscribers. Case C1 shows that if 20% of the market had been lost in 1988, and there had been no price response from the telcos to retain 80% of the market, monthly rates for basic service would have risen by 44%. As the size of the price response from SaskTel rises, to hold 80% of the market, the rates for monthly basic service would also rise. Case C5 shows a 20% reduction in telco long-distance rates to enable it to hold 80% of the market. This is the most likely of the scenarios which would have arisen. In this case, basic service rates would have had to be 98% higher than they were in 1988, to enable SaskTel to meet its revenue requirements for that year. In dollar terms this would have meant rate increases of $6.52 and $7.83 per month for rural and urban residential subscribers respectively. It would have meant increases of $16.58 and $24.03 per month for rural and urban business subscribers.

Table IV shows Cases C6 to C10, where the shortfall in revenue requirement for 1988 would have been met by equal dollar increases for all access subscribers. Had SaskTel been able to retain 80% of the long-distance market with no price response, basic service rates would have had to rise by $5.06 per month, representing up to a 76% increase for rural residential rates. In Case C10, the most likely scenario, rates would have risen by $11.16 per month. This would represent a 167% increase for rural residential basic service rates.

Table III

Basic Monthly Service Charges
SaskTel 1988

Status Quo and Various Competitive Market Conditions
Equal Percentage Increases for all Subscribers

	Urban		Rural	
	Business	Residence	Business	Residence
Present Average Rates	$24.53	$7.99	$16.93	$6.65
Case C1	$35.43	$11.54	$24.45	$9.61
CN/CP competition	44.4% increase	44.4% increase	44.4% increase	44.4% increase
20% market share	$10.90 increase	$3.55 increase	$7.52 increase	$2.96 increase
25% price discount				
No price response				
Case C2	$38.27	$12.47	$26.41	$10.38
CN/CP competition	56.0% increase	56.0% increase	56.0% increase	56.0% increase
20% market share	$13.74 increase	$4.48 increase	$9.48 increase	$3.73 increase
25% price discount				
5% SaskTel price response				
Case C3	$41.41	$13.49	$28.58	$11.23
CN/CP competition	68.8% increase	68.8% increase	68.8% increase	68.8% increase
20% market share	$16.88 increase	$5.50 increase	$11.65 increase	$4.58 increase
25% price discount				
10% SaskTel price response				
Case C4	$44.84	$14.61	$30.95	$12.16
CN/CP competition	82.8% increase	82.8% increase	82.8% increase	82.8% increase
20% market share	$20.31 increase	$6.62 increase	$14.02 increase	$5.51 increase
25% price discount				
15% SaskTel price response				
Case C5	$48.56	$15.82	$33.51	$13.17
CN/CP competition	98.0% increase	98.0% increase	98.0% increase	98.0% increase
20% market share	$24.03 increase	$7.83 increase	$16.58 increase	$6.52 increase
25% price discount				
20% SaskTel price response				

Source: Analysis of SaskTel Operating Data

Table IV

Basic Monthly Service Charges
SaskTel 1988

Status Quo and Various Competitive Market Conditions
Equal Dollar Increases for all Subscribers

	Urban		Rural	
	Business	Residence	Business	Residence
Present Average Rates	$24.53	$7.99	$16.93	$6.65
Case C6	$29.59	$13.05	$21.99	$11.71
CN/CP competition	20.6% increase	63.3% increase	29.9% increase	76.1% increase
20% market share	$5.06 increase	$5.06 increase	$5.06 increase	$5.06 increase
25% price discount				
No price response				
Case C7	$30.91	$14.37	$23.31	$13.03
CN/CP competition	26.0% increase	79.9% increase	37.7% increase	95.9% increase
20% market share	$6.38 increase	$6.38 increase	$6.38 increase	$6.38 increase
25% price discount				
5% SaskTel price response				
Case C8	$32.37	$15.83	$24.77	$14.49
CN/CP competition	32.0% increase	98.1% increase	46.3% increase	117.9% increase
20% market share	$7.84 increase	$7.84 increase	$7.84 increase	$7.84 increase
25% price discount				
10% SaskTel price response				
Case C9	$33.97	$17.43	$26.37	$16.09
CN/CP competition	38.5% increase	118.2% increase	55.8% increase	142.0% increase
20% market share	$9.44 increase	$9.44 increase	$9.44 increase	$9.44 increase
25% price discount				
15% SaskTel price response				
Case C10	$35.69	$19.15	$28.09	$17.81
CN/CP competition	45.5% increase	139.7% increase	65.9% increase	167.8% increase
20% market share	$11.16 increase	$11.16 increase	$11.16 increase	$11.16 increase
25% price discount				
20% SaskTel price response				

Source: Analysis of SaskTel Operating Data

5.3 Financial Impacts of Rate Rebalancing

As previously noted in Section 3, it is not a necessary requirement that competition be introduced into the telecommunications market to achieve cost effective reductions in long-distance rates. The Federal-Provincial-Territorial Task Force in its examination of the impacts of competition on telephone service prices in the the United States, has identified that:

> "One of the most crucial measures of the impact of competition on both carriers and their customers is how prices for services have changed in the wake of competition. Since local exchange services are not in fact competitive, the only possible impacts would be indirect effects of changes in the interexchange markets. As we have seen, there have been minimal impacts upon costs and revenue requirements of local exchange carriers that have resulted from long distance competition, although the industry restructuring has led to a shift of rates from IEC [Inter-Exchange Carrier] responsibility to local access charges. On the other hand, competition for interexchange services has been *accompanied* by significant price reductions, but reductions have not *resulted* from competition in an economic sense, nor are they (in the case of AT&T's pricing) dependent upon the presence of competition."[24]
> (underlining added)

In fact, the lower interexchange price levels and the increase in the the subscribers monthly bill resulting from the new end-user access charges, are a direct result of the national regulator in the United States implementing policy changes to shift non-traffic sensitive costs from the carriers to customers[25].

It is apparent, for the Canadian market, that long-distance rate reductions can be achieved straightforwardly, through the

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[24] Economics and Technology, Inc., A Study of Selected Impacts of Competition in the U.S. Long-Distance Telephone Industry, Boston, Massachusetts, July 1988, p.51.

[25] Ibid, p.iv.

regulatory process, by aggressively realigning the present rate structure so that rates for both toll and local/access services are closer to their actual costs. This kind of restructuring of rates is called rate rebalancing.

There are important reasons to give rate rebalancing serious consideration as an alternative to competition, especially since the U.S. experience has shown that competition has produced not much more than rate rebalancing in any case. Complete rate rebalancing avoids costly duplication of networks, loss of the benefits of economies of scale, advertising costs, rearrangement costs, consumer uncertainty[26], and all of the other problems cited in the Task Force's consulting reports. Moreover, and far more important even yet, is that under rate rebalancing all telecommunications users receive the same price benefits; that is the service and pricing principle of equal price for equal service for everyone is maintained. Everyone benefits equally.

Accordingly, this study carried out an analysis of the financial impact on SaskTel and on its basic service subscribers, to determine how much basic service rates would have had to rise in 1988 under various levels of rate reductions for long-distance services. As with the competitive cases, demand for toll services was assumed to be larger when prices were cut, according to the amounts indicated by the price responsiveness of long-distance service demand (price elasticity of demand). In this set of cases the SaskTel long-distance network would have been larger than it actually was in 1988. Costs for long-distance services were assumed to rise proportionally with volume increases. This overstates the amount of additional costs that would have arisen with increased demand because the incremental cost is well below the average costs of providing long-distance service. As a result, the financial impacts on SaskTel's revenue requirement

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[26] David Chessler and Associates, The Effect of Toll Competition on Prices, Costs and Productivity of the Telephone Industry in the United States, Bethesda, Maryland, March 1988, especially Chapter 4, pp.47-94.

have been overstated to some degree. Thus, when translated into the impact on the subscribers basic service rates, the price advantages are understated from direct rate rebalancing, as compared to using competition to achieve the same objective.

The financial analysis of rate rebalancing shows that if SaskTel implemented reductions in its own long-distance rates, it would have experienced revenue shortfalls in 1988. The analysis used long-distance rate reductions by SaskTel of 5%, 10%, 15%, 20% and 25%. In every case SaskTel experiences a revenue shortfall because the expansion in demand from price cuts, though significant, is not large enough to compensate for the loss in revenue from the price cuts. In addition, the analysis shows that revenue shortfalls increase as the size of the rate reduction increases. At the aggregate level, the impact on SaskTel's revenue requirement of a 5% reduction in long-distance rates, is a shortfall of $9.3 million. In the case where SaskTel decreases its long-distance rates by 25%, the revenue shortfall rises to $56.5 million. The significance of these revenue shortfalls is again, as in the case of competition, their impact on the subscribers' basic service rates, which would have to rise to meet SaskTel's revenue requirements.

The results of the financial analysis of the impact of rate rebalancing, for individual subscribers, are portrayed in Tables V and VI. As previously indicated, the impacts shown in Cases R1 to R10 (the rebalancing cases) are all overstated to some degree. Table V shows the results of the analysis for the case where shortfalls in revenue requirements for 1988 are met by equal percentage increases for all basic service subscribers. The cases in Table V can be compared to those in Table III for competition in various ways. For example Case R3 compared to Case C1 shows that the same 44% increase in basic service rates in Case C1 would, under rate rebalancing, enable 100% of Saskatchewan subscribers to obtain a 15% reduction in long-distance rates; Case C1 provides no rate reduction at all on 80% of all long-distance usage, confining the

Table V

Basic Monthly Service Charges
SaskTel 1988

Status Quo and Various Rebalanced Telephone Company Rates
Equal Percentage Increases for all Subscribers

	Urban		Rural	
	Business	Residence	Business	Residence
Present Average Rates	$24.53	$7.99	$16.93	$6.65
Case R1	$27.84	$9.07	$19.21	$7.55
5% SaskTel Long-distance	13.5% increase	13.5% increase	13.5% increase	13.5% increase
--Rate Reprice	$3.31 increase	$1.08 increase	$2.28 increase	$0.90 increase
Case R2	$31.49	$10.26	$21.73	$8.54
10% SaskTel Long-distance	28.4% increase	28.4% increase	28.4% increase	28.4% increase
--Rate Reprice	$6.96 increase	$2.27 increase	$4.80 increase	$1.89 increase
Case R3	$35.48	$11.56	$24.49	$9.62
15% SaskTel Long-distance	44.7% increase	44.7% increase	44.7% increase	44.7% increase
--Rate Reprice	$10.95 increase	$3.57 increase	$7.56 increase	$2.97 increase
Case R4	$39.82	$12.97	$27.48	$10.80
20% SaskTel Long-distance	62.4% increase	62.4% increase	62.4% increase	62.4% increase
--Rate Reprice	$15.29 increase	$4.98 increase	$10.55 increase	$4.15 increase
Case R5	$44.51	$14.50	$30.72	$12.07
25% SaskTel Long-distance	81.5% increase	81.5% increase	81.5% increase	81.5% increase
--Rate Reprice	$19.98 increase	$6.51 increase	$13.79 increase	$5.42 increase

Source: Analysis of SaskTel Operating Data

Table VI

Basic Monthly Service Charges
SaskTel 1988

Status Quo and Various Rebalanced Telephone Company Rates
Equal Dollar Increases for all Subscribers

	Urban		Rural	
	Business	Residence	Business	Residence
Present Average Rates	$24.53	$7.99	$16.93	$6.65
Case R6	$26.07	$9.53	$18.47	$8.19
5% SaskTel Long-distance	6.3% increase	19.3% increase	9.1% increase	23.2% increase
--Rate Reprice	$1.54 increase	$1.54 increase	$1.54 increase	$1.54 increase
Case R7	$27.76	$11.22	$20.16	$9.88
10% SaskTel Long-distance	13.2% increase	40.4% increase	19.1% increase	48.6% increase
--Rate Reprice	$3.23 increase	$3.23 increase	$3.23 increase	$3.23 increase
Case R8	$29.62	$13.08	$22.02	$11.74
15% SaskTel Long-distance	20.8% increase	63.7% increase	30.1% increase	76.5% increase
--Rate Reprice	$5.09 increase	$5.09 increase	$5.09 increase	$5.09 increase
Case R9	$31.63	$15.09	$24.03	$13.75
20% SaskTel Long-distance	28.9% increase	88.9% increase	41.9% increase	106.8% increase
--Rate Reprice	$7.10 increase	$7.10 increase	$7.10 increase	$7.10 increase
Case R10	$33.81	$17.27	$26.21	$15.93
25% SaskTel Long-distance	37.8% increase	116.2% increase	54.8% increase	139.6% increase
--Rate Reprice	$9.28 increase	$9.28 increase	$9.28 increase	$9.28 increase

Source: Analysis of SaskTel Operating Data

benefits to a select 20% of toll use which obtains the 25% competitor discount. Far more dramatic is the result for Case R5. Here, under rate rebalancing, all long-distance usage receives a 25% discount and at the same time the penalty to basic service is an 81% rate increase instead of a 98% increase under competition where only 20% of toll use would have been at a 25% discount with the rest at a 20% discount. Thus, Case R5 shows that rate rebalancing can convey more price benefits to all long-distance users than competition could, and can do so at a substantially lower cost to basic service users.

Table VI shows the results of the analysis assuming that the shortfalls in revenue requirements from reductions in long-distance rates in 1988 were met by equal dollar increases for all basic service users. The benefit to basic service users parallels that shown in Table V.

As noted earlier, the results shown in Tables V and VI understate the benefits to basic service subscribers from rate rebalancing compared to competition as a means of lowering long-distance rates. Even with that understatement, it is clear that basic service subscribers will be much better off at any level of rate reduction for long-distance under rate rebalancing than they would be with competition. Everyone obtains the same benefits under rebalancing, unlike the competitive case where the select few obtain lower rates. All subscribers experience a lower rate of increase in basic service rates under rate rebalancing than they would under competition. Thus, long-distance rate reductions can be achieved more economically, more equitably, and less disruptively under rate rebalancing. Of particular importance to Saskatchewan is the fact that rural telecommunications users receive the same benefits as urban users under rate rebalancing, which would not be the case with CNCP competition with its strictly urban presence.

6.0 Conclusions

Increasing concern is being expressed in Canada that existing rates for long-distance service are too high. This concern has created increased pressure from various sectors for the lowering of long-distance service rates through the introduction of competition. Long-distance revenues contribute very heavily to the costs of providing local/access service. Therefore, long-distance appears to be very profitable, thus leading to pressure from would-be competitors to seek entry as well. As a result of these pressures, the Canadian Ministers responsible for telecommunications assigned the responsibility to the Federal-Provincial-Territorial Task Force to examine the desirability of competition in the public long-distance service market. The resulting Task Force report provides valuable insight into the potential impacts of competition on subscribers in general. However, it does not provide a comprehensive review of the potential impacts on Rural and Urban subscribers taken separately nor does it analyze other alternatives to competition such as direct regulatory action to rebalance rates.

This study has extended the analysis of the Task Force to provide an assessment of the potential impacts of competition on rural and urban subscribers for the particular case of Saskatchewan, as an example of the Prairie provinces, with their unique characteristics.

6.1 The Study Process

The study was conducted in two stages. First, the study identified the cost and revenue relationships that exist for the Urban/Intercity Network and the Rural Network. This stage entailed, a comprehensive analysis of the costs and revenues of the telecommunications network by its rural and urban/intercity components. The analyses measured the current level of subsidies which flow between the respective networks as well as the subsidies

which flow between the toll and local/access components of each network. The results of these analyses show just how extensive the toll to local/access, and urban to rural subsidies were for 1988. The findings facilitated the measurement of the impacts of adjusting these historical subsidy relationships, whether those adjustments arise out of competition or out of regulatory action to lower long-distance rates.

The second part of the study was to estimate the impact of these two types of scenario for lowering long-distance rates in 1988, had they been fully implemented in that year. Specifically, the two scenarios examined were; (i) the introduction of competition similar to the type of competition identified by CNCP in a previous application to the Canadian Radio-television and Telecommunications Commission and, (ii) the introduction of rebalanced long-distance rates mandated by direct action of the telephone company regulators. The decision to evaluate these two scenarios resulted from the review of competition in the United States contained in the Task Force's background reports. These reports indicate that just about all that competition has achieved in the U.S. is the rebalancing of long-distance and local/access rates and that these changes virtually all took place due to policy changes; that is, they had nothing to do with competition itself.

6.2 Current Subsidy Levels

The study results show that there are substantial subsidy requirements within the current cost structure of the local/access network, as shown in Table VIII. Basic service is heavily subsidized by toll revenue, with the subsidy being over twice as large for rural areas as it is for urban areas. The $19.58 per month, per line of urban subsidy is one and a half times the current average monthly access rate while the rural subsidy of $43.30 is nearly five times the average monthly rate.

TABLE VII

Local/Access Subsidy, and Total Surplus or Deficit Per Access Line For Urban/Intercity and Rural - SaskTel 1988

	URBAN/INTERCITY NETWORK	RURAL NETWORK
Average Local/Access Subsidy per line, per month	$19.58	$43.30
Total Surplus or Deficit (-) per line, per month after Toll Revenue & Costs	$10.43	$-11.98

Source: Tables I and II

The analysis also shows that even after toll revenues are taken into account, the rural network still has a substantial deficit which is subsidized from the surplus earned from the urban/intercity network. This clearly indicates the potential effect that competition could have on rural subscribers. As the ability of the telephone company to subsidize the rural network disappears with its loss in market share as subscribers switch to the competitor, the telco will be driven to recovering more costs from rural rates.

6.3 The Impacts of Competition

At the aggregate level, the financial analyses of the various competitive scenarios show that in every case SaskTel would have experienced large revenue shortfalls in 1988. Depending upon the competitive scenario, these shortfalls ranged from $30.8 million to as much as $67.9 million. The significance of these revenue shortfalls is their impact on basic monthly service rates for all subscribers, which would have to rise to meet SaskTel's revenue requirement. These monthly increases for SaskTel subscribers' basic service rates in 1988, range from 44% to 98% when applied on an equal percentage basis, or from $5.06 to $11.16 per month, when applied on an equal dollar basis.

Since 1984, in the United States, competitors under equal access have been able to capture 30% of toll minutes with price discounts of 5% or less. Thus the most likely scenario that would result in Canada from the form of competition outlined by the Task Force, would be that incumbent telcos would have to cut their own rates by 20%, to retain anywhere near 80% of the long-distance market. The results for this scenario are illustrated in Table VIII:

TABLE VIII

Basic Monthly Service Charges
SaskTel 1988
Status Quo and Various Competitive Market Conditions
Equal Dollar and Equal Percentage Increases for all Subscribers

	URBAN		RURAL	
	Business	Residence	Business	Residence
PRESENT AVG. RATES	$24.53	$7.99	$16.93	$6.65
EQUAL % INCREASE				
Case C5	$48.56	$15.82	$33.51	$13.17
CN/CP competition	98.0% increase	98.0% increase	98.0% increase	98.0% increase
20% market share	$24.03 increase	$7.83 increase	$16.58 increase	$6.52 increase
25% price discount				
20% SaskTel price response				
EQUAL $ INCREASE				
Case C10	$35.69	$19.15	$28.09	$17.81
CN/CP competition	45.5% increase	139.7% increase	65.9% increase	167.8% increase
20% market share	$11.16 increase	$11.16 increase	$11.16 increase	$11.16 increase
25% price discount				
20% SaskTel price response				

Source: Tables III and IV

All of the resulting impacts from this competitive scenario would have been massive rate increases for basic service subscribers, in 1988.

There is no sure way to determine exactly how the telephone company would have adjusted basic service rates to make up the revenue requirement. However, the U.S. experience has been to show a greater tendency toward equal dollar impacts. Therefore

under the most likely competitive scenario, Case C10, rural residential subscribers might have experienced an increase in monthly rates of as much as 167%.

To the extent that telco pricing philosophy in a competitive milieu is to price services based on their actual cost, or to the extent that bypass of the local network might occur because of substantially higher basic service rates, the revenue requirement would have had to have been met by shifting charges to residential customers. This would have put increased pressure on the incumbent telcos to close the gap between the costs and the rates charged for rural service in order to lower the subsidy requirement of rural local/access from its present level of $43.30 per line, per month.

Competition, where the competitor only has a presence in the urban centres, has some serious adverse equity impacts, specifically for rural subscribers. In order to have access to the competitor's network the rural subscriber would have to use the incumbent telephone company's long-distance network from the rural location to the nearest urban centre. This likely would be achieved by the competitor offering a WATS (800) number which off-network subscribers could use to reach the competitor's network. There are no guarantees that the competitor would offer the same level of discount to the rural subscriber. (It would have an incentive not to do so because of the higher costs it incurs to provide service to these subscribers). If one could expect that the competitor would be required to average its rates for all subscribers who have access to its network, then the price disadvantage to rural subscribers would be avoided. Even so, the rural subscriber would still experience a quality disadvantage because access to the competitor's network would require that twenty-one (21) digits be dialed. This in itself is a considerable deterrent as well as being a substantial decrease in the quality of the competitor's service to rural subscribers compared to urban subscribers.

A further inequity would arise for rural subscribers out of calling patterns. Rural subscribers do the bulk (84%) of their long-distance calling intra-provincially and over short distances. Experience in the United States, reported by the Task Force, is that rates for intra-state calls have not been reduced, even while inter-state rates have been reduced substantially[27]. American experience has also shown, that the percentage reduction in the rates for shorter distance calls has not been nearly as great as the percentage reduction in longer distance calls. Thus rural subscribers, who make nearly three (3) times more calls within the province than do urban subscribers, would not be in a position to benefit from competition because they do not make the right type of long-distance call.

Several new costs will arise should competition be introduced into the Canadian telecommunications market. There would be substantial costs to modify the present telco's switches and network. Costs to support a duplicate long-distance network, duplicate billing systems, and duplicate administration, would be incurred, among many others. In addition, there would be, as U.S. experience has shown, substantial ongoing costs of advertising as competing long-distance providers attempt to attract a higher share of the market, or in the case of the incumbent long-distance provider, in an attempt to retain its market share. Similar costs can be anticipated in Canada in the event of competition. These increased costs would be in addition to the increased costs that the incumbent telco would experience because of lost economies of scale.

Beyond all of these costs are those that the subscriber would face. These would include the increased cost to handle and process duplicate bills, and to undertake costly price and service comparisons of all long-distance providers in hopes of obtaining the lowest priced, highest quality service.

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[27] David Chessler and Associates, The Effect of Toll Competition on Prices, Costs and Productivity of the Telephone Industry in the United States, Bethesda, Maryland, March 1988, p.163 and especially figure 6-3 on p.165.

6.4 The Impacts of Rate Rebalancing

As was noted earlier, the rate decreases that have been experienced in the United States long-distance market have not resulted from the existence of competition, but have in fact resulted from direct regulatory action. Similar action taken by regulators to rebalance rates in the Canadian market would provide equal treatment for all subscribers including those that reside in small towns, rural areas (farms) and remote regions. Rate rebalancing could be implemented today, at the stroke of a pen, without incurring the additional costs that are inherent with the introduction of competition. The costs of duplicate billing and increased advertising, and the costs to modify the switching network and to build a duplicate network, would not emerge. The incumbent telephone companies would continue to reap the economies of scale that are inherent in the present telecommunications cost structure, as they enlarge their network to meet the increased demand for long-distance service as prices decrease.

Rate rebalancing would result in all subscribers being able to obtain identical discounts in long-distance rates. Rebalancing would also ensure that all types of long-distance calls (inter-provincial, intra-provincial, short-haul and long-haul) would receive the same level of rate reductions, therefore the same benefits would accrue to both Rural and Urban subscribers. Rebalancing would also provide subscribers with the same high quality long-distance service that they presently receive, especially for rural users who would retain the present 1+ dialing feature of the current direct distance dialing structure. Moreover, rate rebalancing would have no adverse effect on the ability of telcos to develop a wide variety of pricing packages, or to replicate those being developed in the United States.

The financial analysis of the various rate rebalancing scenarios shows increases in the Basic Monthly Service Rates for all

cases. Depending upon the rebalancing scenario, these monthly increases for SaskTel subscribers in 1988, would have ranged from 13% to 81% when applied on an equal percentage basis or from $1.54 to $9.28 when applied on an equal dollar basis. The results for the scenario where the telco introduced rate decreases of 25% for all long-distance rates are illustrated in Table IX:

TABLE IX

Basic Monthly Service Charges
SaskTel 1988
Status Quo and Various Rebalanced Telephone Company Rates
Equal Dollar and Equal Percentage Increases for all Subscribers

	URBAN		RURAL	
	Business	Residence	Business	Residence
PRESENT AVG. RATES	$24.53	$7.99	$16.93	$6.65
EQUAL % INCREASE				
Case R5	$44.51	$14.50	$30.72	$12.07
25% SaskTel Long-distance	81.5% increase	81.5% increase	81.5% increase	81.5% increase
--Rate Reprice	$19.98 increase	$6.51 increase	$13.79 increase	$5.42 increase
EQUAL $ INCREASE				
Case R10	$33.81	$17.27	$26.21	$15.93
25% SaskTel Long-distance	37.8% increase	116.2% increase	54.8% increase	139.6% increase
--Rate Reprice	$9.28 increase	$9.28 increase	$9.28 increase	$9.28 increase

Source: Tables V and VI

The most significant finding of this part of the present study was that Rate Rebalancing causes greatly reduced impacts on the subscribers monthly basic service rates, compared to the increases resulting from the introduction of competition. Table X shows the differences for the most interesting case.

TABLE X

Basic Monthly Service Charges
SaskTel 1988
Rebalanced vs. Competitive Scenarios
Equal Percentage Increases for all Subscribers

	URBAN		RURAL	
	Business	Residence	Business	Residence
PRESENT AVG. RATES	$24.53	$7.99	$16.93	$6.65
RATE REBALANCING				
Case R5	$44.51	$14.50	$30.72	$12.07
25% SaskTel Long-distance	81.5% increase	81.5% increase	81.5% increase	81.5% increase
--Rate Reprice	$19.98 increase	$6.51 increase	$13.79 increase	$5.42 increase
COMPETITION				
Case C5	$48.56	$15.82	$33.51	$13.17
CN/CP competition	98.0% increase	98.0% increase	98.0% increase	98.0% increase
20% market share	$24.03 increase	$7.83 increase	$16.58 increase	$6.52 increase
25% price discount				
20% SaskTel price response				
Net Benefit from Rate Rebalancing	$4.05	$1.32	$2.79	$1.10

Source: Tables III and V

Here, Case R5, where everyone obtains a 25% decrease in long-distance rates, is compared to the competitive Case C5 where only 20% of calls experience a 25% reduction; the remainder, with the telco's strongest rate response, obtain only a 20% reduction in rates. The striking point shown here is that everyone could obtain a 25% reduction in long-distance rates under rate rebalancing and the burden on basic service rates could have been reduced by over 16%, for 1988. Moreover, these results underestimate the reduction in the burden on access rates because the study method assumed network costs would rise proportionally with increased long-distance usage; in fact, costs would rise much less than proportionally, on account of

economies of scale, thus the burden reduction would be greater than shown here.

Under any scenario examined in this study, the local subscriber would have experienced substantial increases in monthly basic service rates as the recovery of non-traffic sensitive costs were increasingly shifted from long-distance to basic service rates. However the study results clearly demonstrate that, compared to competition, rate rebalancing is a far more equitable and cost efficient method of reducing long-distance rates. The penalty to subscribers, of higher monthly basic service rates, would have been very significantly less in 1988 under rate rebalancing than with competition. In addition, factors such as customer confusion over two bills, confusion with the many new rate schedules as well as the increased costs inherent in the construction of a duplicate competitive network would never be experienced under rate rebalancing.

6.5 Summary

For the first time in the prairies, this study quantifies the impacts of competition and of rate rebalancing, had they been fully operational in 1988. The study has also identified the intricate balance of costs and revenues which presently exist within the Rural and Urban components of the telecommunications network.

These study results, in conjunction with the review of the information and findings reported by the Federal-Provincial-Territorial Task Force On Telecommunications in Competition in Public Long-Distance Telephone Service in Canada, show that there are serious detrimental impacts for both rural and urban subscribers which would result should competition be introduced into this market. The study also identifies that the impacts on rural subscribers would be more serious than on urban subscribers in terms of the increased cost of telecommunications. Moreover, rural

subscribers would not be able to obtain either the price benefits of competition or the same quality of access to it, as would urban subscribers.

The study also has shown that direct regulatory action to rebalance rates is a less costly and much more efficient and equitable method of reducing high long-distance service rates. It also could work much more rapidly since there would be almost no phasing-in period.